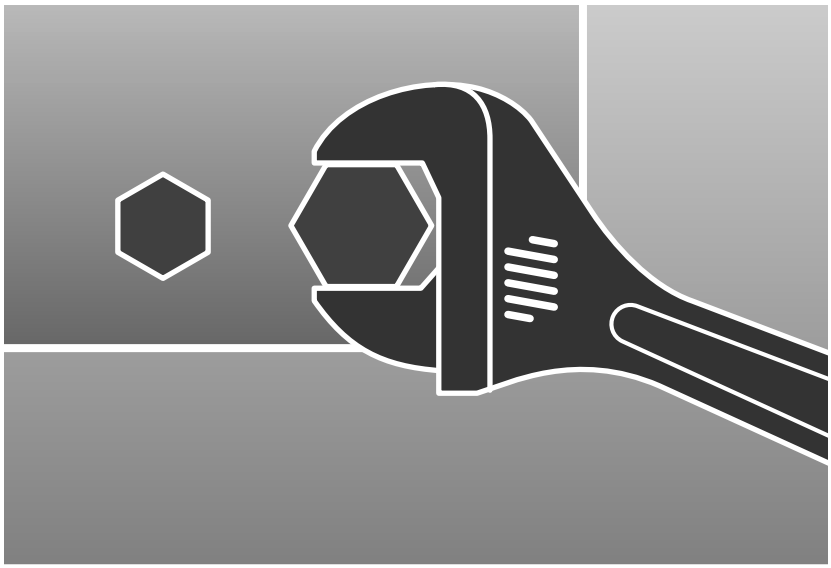
SAMSUNG

INSTALLATION MANUAL
MANUAL DE INSTALACION
MANUALE PER L'INSTALLZIONE
MANUAL DE INSTALAÇÕES
MANUEL D'INSTALLATION
GEBRAUCHSANWEISUNG
ΕΓΧΕΙΡΙΔΙΟ ΕΓΚΑΤΑΣΤΑΣΗΣ
ИНСТРУКЦИЯ ПО УСТАНОВКЕ

Type	Indoor unit	Outdoor unit
ADH1800E	IDH1800E	UBH1800E
ADH2400E	IDH2400E	UBH2400E
ADH3200E	IDH3200E	UDH3200E
DH18ZA1(A2)	DH18ZA1(A2)	DH18ZAX
DH24ZA1(A2)	DH24ZA1(A2)	DH24ZAX
DH32ZA1(A2)	DH32ZA1(A2)	DH32ZAX

Duct-type Air Conditioner (Cool and Heat)
Aire acondicionador Tipo Canal (Refrigeración y Calefacción)
Condizionatore d'aria Tipo Conduttura (Raffreddamento e Riscaldamento)
Ar Condicionado Tipo Conduto (Refrigeração e Aquecimento)
Climatiseur de type Conduit (Refroidissement et Chauffage)
Ventiltype Klimaanlage (Kühlen und Wärmen)
Κλιματιστικό Τύπου Αεραγωγού (Ψύξης και Θέρμανσης)
Кондиционер канального типа (Охлаждение и обогрев)



ENGLISH
ESPAÑOL
ITALIANO
PORTUGUÊS
FRANÇAIS
DEUTSCH
ΕΛΛΗΝΙΚΑ
RUSSIAN

ⒺⓈⒾⓅⒻⒹⒼⓇ DB98-04155A(1)

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Deciding on Where to Install the Air Conditioner

When deciding on the location of the air conditioner with the owner, the following restrictions must be taken into account.

General

Do NOT install the air conditioner in a location where it will come into contact with the following elements:

- Combustible gases
- Saline air
- Machine oil
- Sulphide gas
- Special environmental conditions

If you must install the unit in such conditions, first consult your dealer.

Indoor Unit

- There must be no obstacles near the air inlet and outlet.
- Choose a space of ceiling that enables the pipes and cables to be easily connected to the outdoor unit and the recommended length of 20 metres to be respected ("L" metres maximum-"L" indicated in the diagram on the page opposite). Proper drain hose passage should also be considered.
- Install the indoor unit on a ceiling that can support its weight.
- Maintain sufficient clearance around the indoor unit, as indicated in the diagram on the page opposite.
- Make sure that the water dripping from the drain hose runs away correctly and safely.

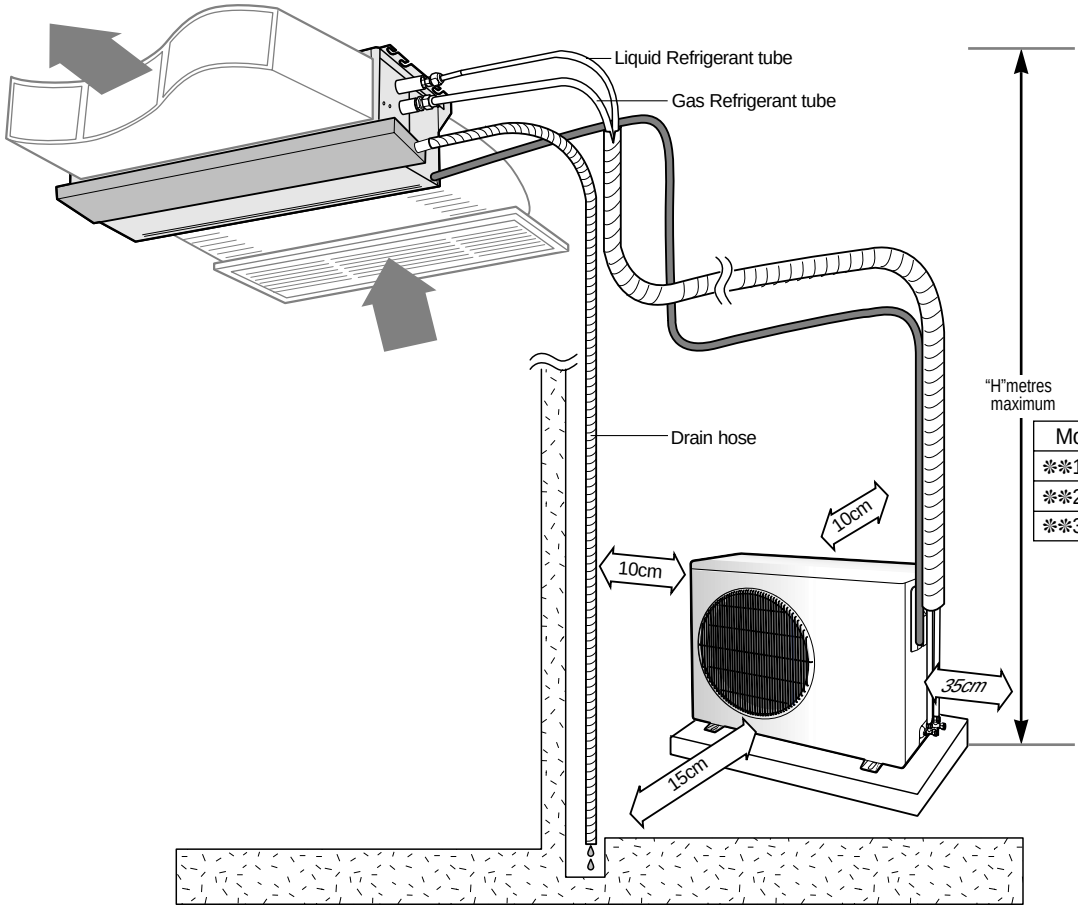
Outdoor Unit

- The outdoor unit must NEVER be placed on its side or upside down, as the compressor lubrication oil will run into the cooling circuit and seriously damage the unit.
- Choose a location that is dry and sunny, but not exposed to direct sunlight or strong winds.
- Do not block any passageways or thoroughfares.
- Choose a location where the noise of the air conditioner when running and the discharged air do not disturb any neighbours.
- Choose a position that enables the pipes and cables to be easily connected to the indoor unit. Recommended length between indoor and outdoor unit is 20 metres.("L" metres maximum)
- Install the outdoor unit on a flat, stable surface that can support its weight and does not generate any unnecessary noise and vibration.
- Position the outdoor unit so that the air flow is directed towards the open area.
- Maintain sufficient clearance around the outdoor unit, as indicated in the diagram on the page opposite.
- If the outdoor unit is installed at a height, ensure that its base is firmly fixed in position; the maximum height difference between indoor and outdoor unit is "H" metres("H" indicated in the diagram on the page opposite.).
- Make sure that the water dripping from the drain hose runs away correctly and safely.

CAUTION

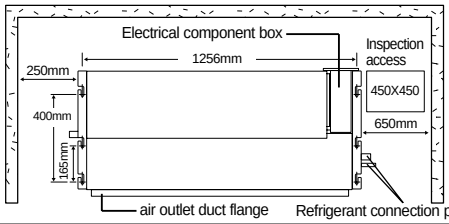
- ***You have just purchased a duct-type air conditioner and it has been installed by your installation specialist.***
- ***This device must be installed according to the national electrical rules.***

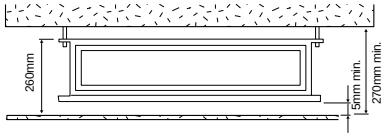
Respect the clearances and maximum lengths indicated in the diagram below when installing the unit.



Model	L	H
❊❊18❊❊	30	15
❊❊24❊❊	30	15
❊❊32❊❊	30	15

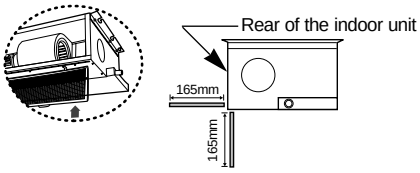
Space requirement when installing the indoor unit





You must have 5mm or more space between the ceiling and the bottom of indoor unit. Otherwise, the noice from the vibration of indoor unit may bother the user.

Space requirement when installing the air filter

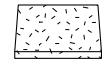
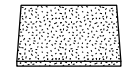
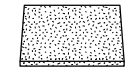
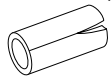
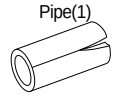
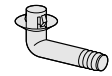
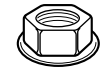


Note ◆ The air filter can be installed to the bottom or rear of the indoor unit.

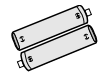
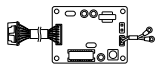
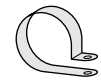
Air Conditioner and Accessories

The following accessories are supplied with the air conditioner. The quantities are indicated in parantheses.

Basic Accessories

			Flare Nuts 3/8 (1)	Flare Nuts 5/8 (1)	Rubber Leg (4)
Owner's Instructions(1)	Installation Manual(1)	Pattern Sheet(1)	Insulation Drain B(1) 	Insulation Drain A(1) 	Insulation Cover Pipe(2) 
Insulation outlet(1) Insulation inlet(1) 	Insulation Drain Pipe(1) 	Cable-Tie(4)	Drain Plug(1) 	Nut(12) 	M4 X 12 Tapped Screw(4)

Optional Accessories

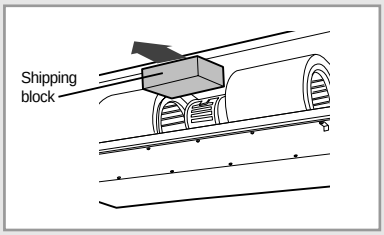
Wired Remote Controller(1) KR-H50110	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)
Wireless Remote Controller(1) KR-H40100	Battery(2) 	M4 X 16 Tapped Screw(2)	Remote Controller Holder(1)
Receiver & Display Unit(1) KRE-H2000	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)
Centralized Controller(1) KR-H60110	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)
Transmitter(1) KT-A00 	Spacer Support(4)	Cable-Tie(2)	
Drain Pump and Float Switch(1) KDP-075S0	M4 X 12 Tapped Screw(4)	Cable-Tie(2)	Cable Clamp(2) 
Air Filter(1) KF-D0B0			

Wire Kit KWE-A110
Length : 10m

Note ◆ Refrigeration pipes and their insulating materials, power cables are not supplied.

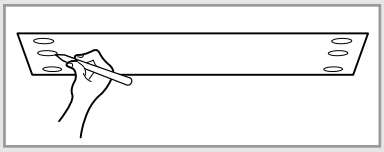
Indoor Unit Installation

1 Carefully remove the indoor unit from the packing case and pull out the shipping block on the motor of the unit.

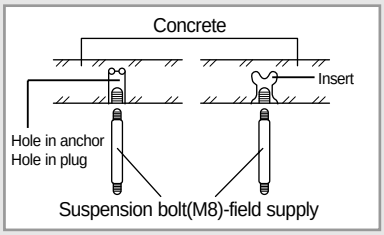


2 Place the pattern sheet on the ceiling at the spot where you want to install the indoor unit.

Note ◆ Since the diagram is made of paper, it may shrink or stretch slightly due to temperature or humidity. For this reason, before drilling the holes maintain the correct dimensions between the markings; refer to page 5.

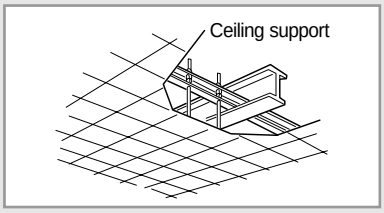


3 Insert bolt anchors. Use existing ceiling supports or construct a suitable support as shown in figure.



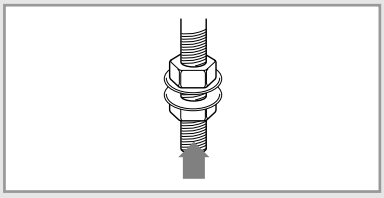
4 Install the suspension bolts depending on the ceiling type.

IMPORTANT **Ensure that the ceiling is strong enough to support the weight of the indoor unit.**
Before hanging the unit, test the strength of each attached suspension bolt.



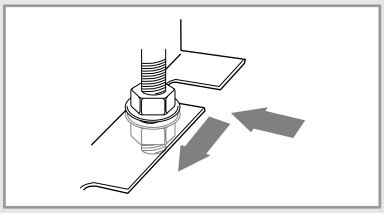
5 Screw eight nuts to the suspension bolts making space for hanging the indoor unit.

IMPORTANT **You must install the suspension bolts more than four when installing the indoor unit.**



6 Hang the indoor unit to the suspension bolts between two nuts.

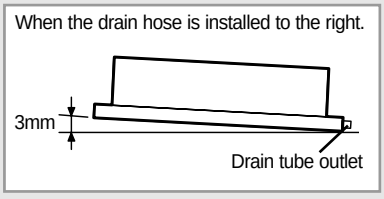
Note ◆ Tubing must be laid and connected inside the ceiling when suspending the unit. If the ceiling is already constructed, lay the tubing into position for connection to the unit before placing the unit inside the ceiling.



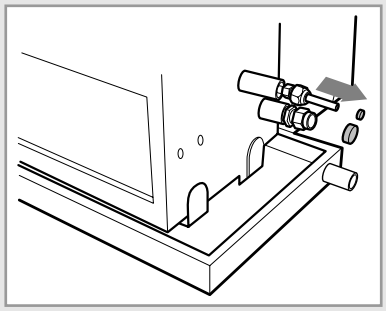
7 Screw the nuts to suspend the unit.

8 Adjust level of the unit by using measurement plate for all 4 sides.

Note ◆ For proper drainage of condensate, give a 3mm slant to the left or right side of the unit which will be connected with the drain hose, as shown in the figure. Make a tilt when you wish to install the drain pump, too.



Purging the Unit



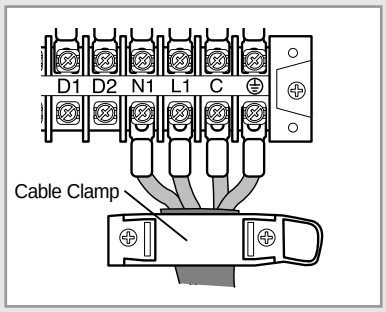
On delivery, the indoor unit is loaded with an inert nitrogen gas. All this gas must therefore be purged before connecting the assembly piping. To purge the inert gas, proceed as follows.

Unscrew the caps at the end of each pipe.

Result: All inert gas escapes from the indoor unit.

Note ◆ To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove the caps completely until you are ready to connect the piping.

Connecting the Connection Cord



The indoor unit is powered from the outdoor unit via the connection cord.

1 Remove the screw on the electrical component box and remove the cover plate.

2 Route the connection cord through the side of the indoor unit and connect the cable to terminals as shown in page 9.

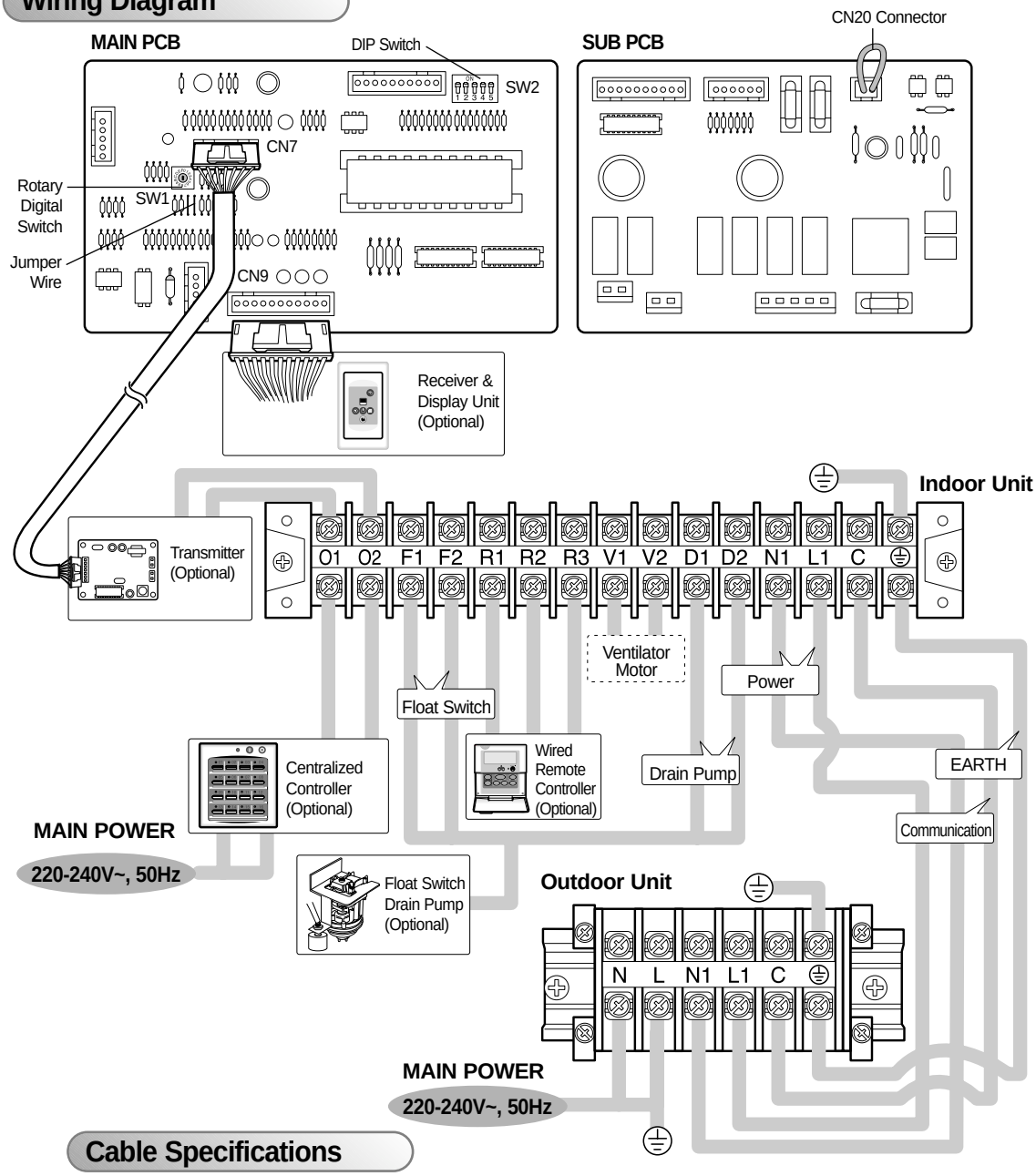
Note ◆ When connecting the cables, you must pass them through the cable clamp to fix them securely.

3 Route the other end of the cable to the outdoor unit through the ceiling & the hole on the wall.

4 Reassemble the electrical component box cover, carefully tightening the screw.

5 For further details on how to plug the other end of the connection cord into the outdoor unit, refer to page 14.

Wiring Diagram



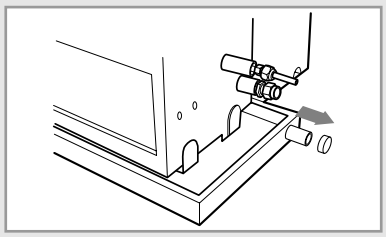
Cable Specifications

The following electrical characteristics must be respected.

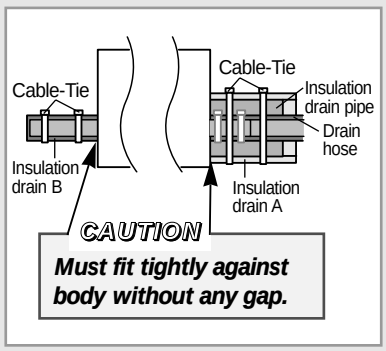
MODEL		ADH1800E/ADH2400E, DH18ZA1(A2)/DH24ZA1(A2)	ADH3200E, DH32ZA1(A2)	Note
Power		1Ø, 220V-240V~, 50Hz		The power cables are not supplied with the air conditioner. The user should purchase them separately.
Sub switch		30A		
Fuse		30A		
Min. size of electric Wires from/to the indoor/outdoor unit		H07RN-F, 4G, 1.0mm²	H07RN-F, 4G, 1.0mm²	
Size of electric input wires	20m or less	H07RN-F, 3G, 2.5mm²	H07RN-F, 3G, 4.0mm²	
	50m or less	H07RN-F, 3G, 4.0mm²	H07RN-F, 3G, 6.0mm²	

Drain Hose Installation

Care must be taken when installing the drain hose for the indoor unit to ensure that any condensate water is correctly drained outside. The drain hose can be installed to the right or left side of the base pan.



1 Remove the rubber cap located on the side of the base pan depending on the situation.



2 Install the drain hose so that its length can be as short as possible. Internal diameter of the drain hose should be the same or slightly bigger than the external diameter.

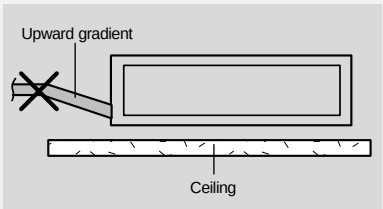
Note
- ◆ Give a 3mm slant to the drain hose for proper drainage of condensate ; refer to page 7.
- ◆ Secure the drain hose with the cable-tie not to be separated from the unit.

3 Wrap the drain hose with the insulation drain pipe, the insulation drain A as shown in figure and secure them. And wrap the other drain tube outlet with the insulation drain B provided.

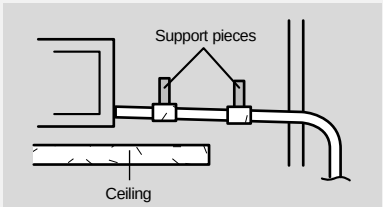
CAUTION

When not installing the drain pump

Do not give the hose and upward gradient after the connection port.
This will cause water to flow backwards when the unit is stopped, resulting in water leaks.

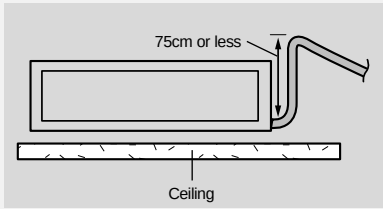


Do not apply force to the piping on the unit side when connecting the drain hose. The hose should not be allowed to hang loose from its connection to the unit. Fasten the hose to a wall, frame or other support as close to the unit as possible.



When installing the drain pump

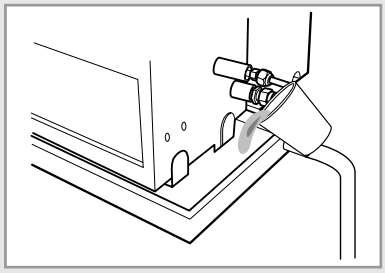
If it is necessary to increase the height of the drain hose somewhat, the portion directly after 75cm. If it is raised higher than 75cm, there can be water leaks.



Testing the drainage

Prepare a little water about 5 liter.

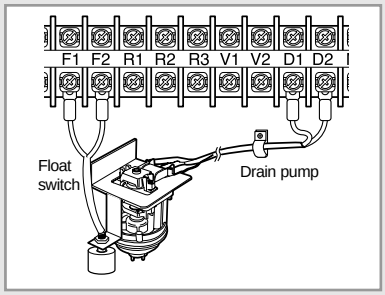
1 Pour water into the base pan in the indoor unit as shown in figure.



2 Confirm that the water flows out through the drain hose.

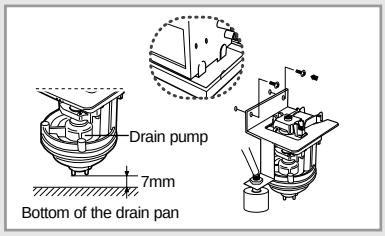
Drain Pump Installation (Optional)

1 Connect the cable to the electrical component box as shown in figure.



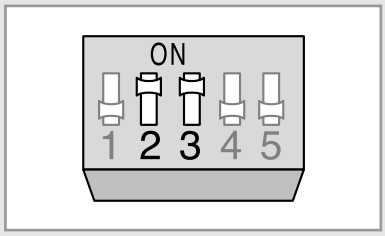
2 Screw the drain pump to the side of the indoor unit with two screws.

Note ◆ When installing the drain pump, leave a 7mm space between the bottom of the drain pan and the drain pump.



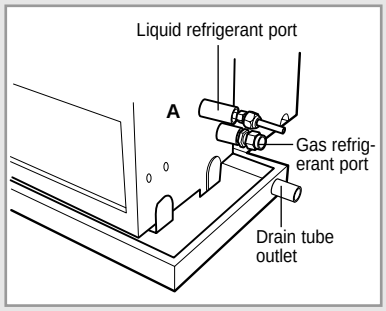
3 Adjust the DIP switch(SW2) on the main PCB according to the table below.

Switch No.	Switch Position
2	ON
3	ON



Note Check below if the drain pump has been installed.
Wrap the drain tube outlet on the right and left side of the indoor unit with an insulating materials.

Connecting the Indoor Unit Assembly Piping

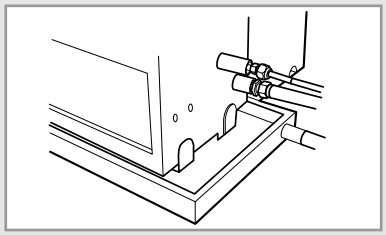


There are two refrigerant pipes of differing diameters:

- A smaller one(9.52mm, 3/8") for the liquid refrigerant
- A larger one(15.88mm, 5/8") for the gas refrigerant
- The thickness of tube should not less than 1.0mm.
- The inside of copper tube must be clean & has no dust.

The connection procedure for the refrigerant pipes varies according to the exit position of the pipes from the indoor unit, as seen when facing the indoor in the "A" side.

- Liquid refrigerant port
- Gas refrigerant port
- Drain hose tube outlet

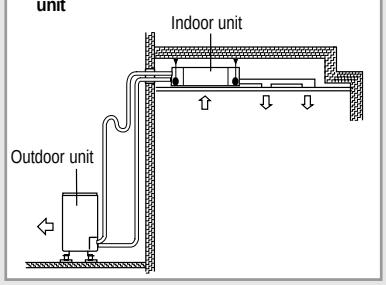


1 Remove the protection caps on the pipes and connect the assembly pipes to each pipe, tightening the nuts, first manually and then with a wrench, a spaner applying the following torque.

Outer Diameter	Torque (kgf•cm)
9.52 mm (3/8")	300
15.88 mm (5/8")	750

Note ◆ If the pipes must be shortened refer to page 13.

a. When the indoor unit is above the outdoor unit



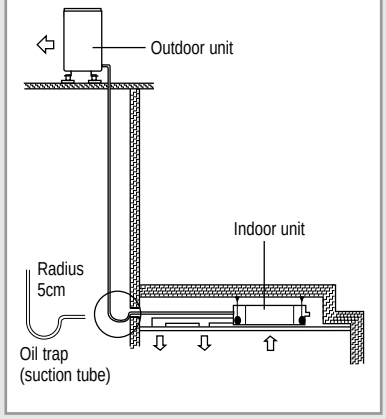
2 Must use insulator which is thick enough to cover the refrigerant tube to protect the condensate water on the outside of pipe falling onto the floor and the efficiency of the unit will be better.

3 Cut off any excess foam insulation.

4 Be sure that there must be no crack or wave on the bended area.

5 It would be necessary to double the insulation thickness (10mm or more)to prevent condensation even on the insulator when if the installed area is warm and humid.

b. When the outdoor unit is above the indoor unit



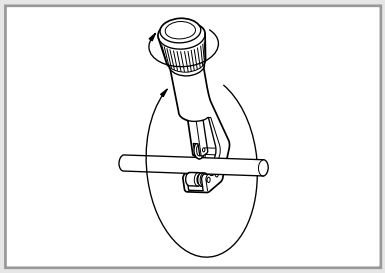
6 Shape an oil trap as shown in figure the oil trap must be formed every level difference of 6m.

7 For further details on connecting up to the outdoor unit and purging the refrigerant circuit, refer to page 17.

Note ◆ The pipes will be insulated and fixed permanantly into position once the whole installation has been tested for gas leaks; refer to page 18 for further details.

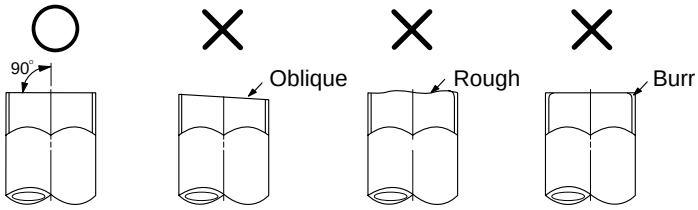
Cutting/Flaring the Pipes

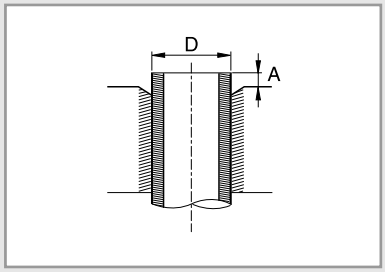
Connect the pipe within 50m and cutting pieces will not be gone into the pipe as being clean to pipe section.



1 Make sure that you have the required tools available (pipe cutter, reamer, flaring tool and pipe holder).

2 If you wish to shorten the pipes, cut it with a pipe cutter, taking care to ensure that the cut edge remains at a 90° angle with the side of the pipe. Refer to the illustrations below for examples of edges cut correctly and incorrectly.



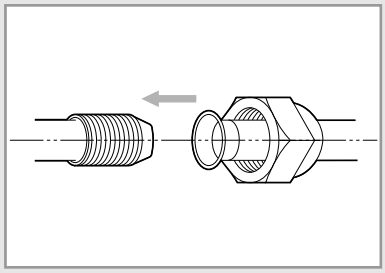


3 To prevent any gas from leaking out, remove all burrs at the cut edge of the pipe, using a reamer.

4 Slide a flare nut on to the pipe and modify the flare.

Outer Diameter(D)	Depth (A)
9.52 mm (3/8")	1.8 mm
15.88 mm (5/8")	2.2 mm

5 Check that the flaring is correct, referring to the illustrations below for examples of incorrect flaring.



6 Align the pipes and tighten the flare nuts first manually and then with a wrench, applying the following torque.

Outer Diameter(D)	Torque(kgf•cm)
9.52 mm (3/8")	300
15.88 mm (5/8")	750

7 For further details on how to connect up to the outdoor unit and purge the circuit, refer to page 17.

CAUTION

- ***In case of welding the pipe, you must weld with nitrogen gas blowing.***

Connecting the Cables to the Outdoor Unit

Two electric cables must be connected to the outdoor unit.

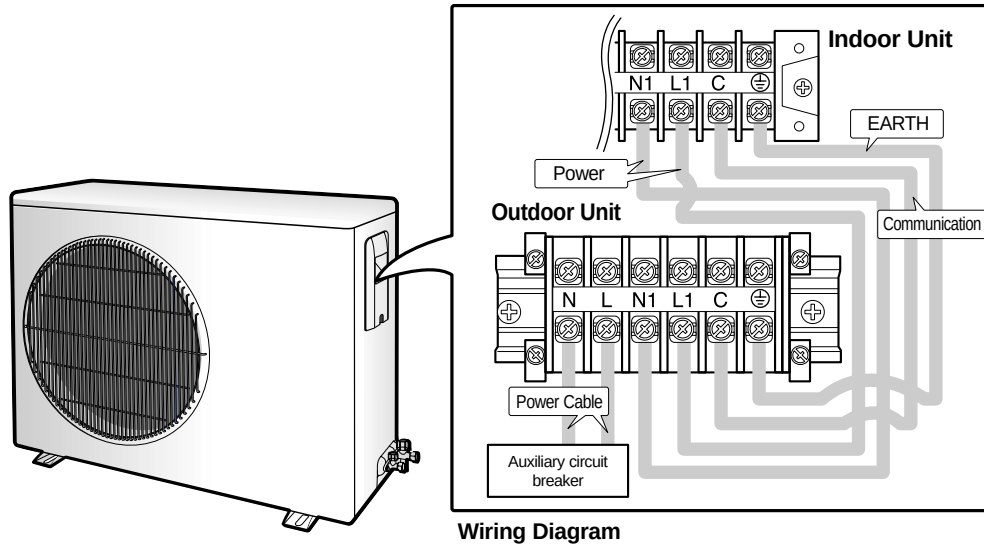
- ◆*The connection cord connecting the indoor unit to the outdoor unit*
- ◆*The power cable connecting the auxiliary circuit breaker to the outdoor unit*

1 Remove the terminal board cover on the side of the outdoor unit.

2 Connect the connection cord(N1, L1, C, ⏚) and power cable(N, L) to terminals as shown in the diagram.

3 Connect the power cable to the auxiliary circuit breaker.
An all pole disconnection from the power supply must be incorporated in the fixed wiring(≥3mm).

4 Replace the terminal board cover, carefully tightening the screw.



Wiring Diagram

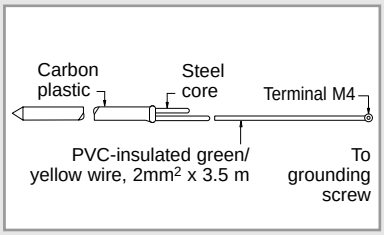
CAUTION

- ◆ ***Keep the power cable and the connection cord in a steel pipe to protect them against liquids, outside impacts and so on.***

Checking Correct Grounding

If the power distribution circuit does not have an earth or the ground does not comply with specifications, an grounding electrode must be installed.

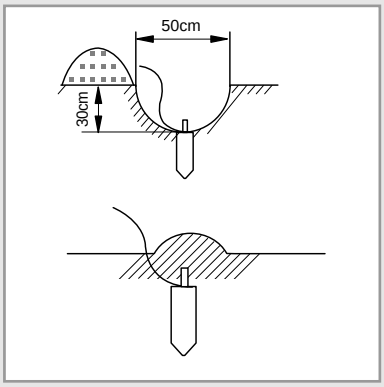
The corresponding accessories are NOT supplied with the air conditioner.



1 Select an grounding electrode that complies with the specifications given in the illustration.

2 Determine a suitable location for the grounding electrode:
- ◆ In damp hard soil rather than loose sandy or gravel soil that has a higher grounding resistance
- ◆ Away from underground structures or facilities, such as gas pipes, water pipes, telephone lines and underground cables
- ◆ At least two metres away from a lightening conductor grounding electrode and its cable

Note
- ◆ The grounding wire for the telephone line cannot be used to ground the air conditioner.



3 Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.

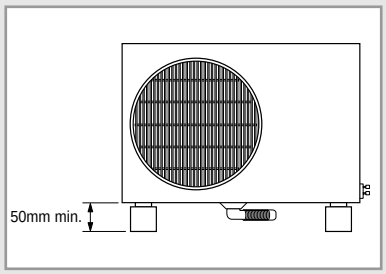
4 Install a green/yellow coloured grounding wire (Ø1.6 mm, section 2 mm^2 or greater):
- ◆ If the grounding wire is too short, connect an extension lead, in a mechanical way and wrapping it with insulating tape (do not bury the connection)
- ◆ Secure the grounding wire in position with staples

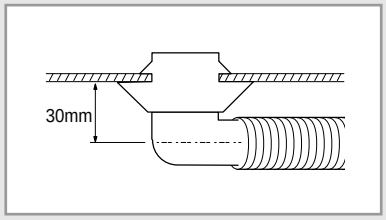
Note
- ◆ If the grounding electrode is installed in an area of heavy traffic, its wire must be connected securely.

5 Carefully check the installation, by measuring the grounding resistance with a ground resistance tester. If the resistance is above required level, drive the electrode deeper into the ground or increase the number of grounding electrodes.

6 Connect the grounding wire to the electrical component box inside of the outdoor unit.

Connecting the Drain Hose to the Outdoor Unit





When using the air conditioner in the heating mode, ice may accumulate. During de-icing, the condensed water must be drained off safely. Consequently, you must install a drain hose on the outdoor unit, following the instructions below.

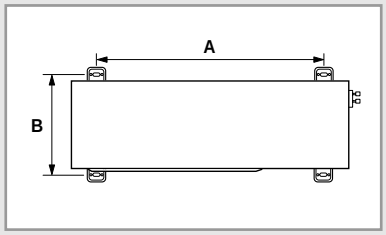
1 Make space more than 50mm between the bottom of the outdoor unit and the ground for installation of the drain hose, as shown in figure.

2 Insert the drain plug into the hole on the underside of the outdoor unit.

3 Connect the drain hose to the drain plug.

4 Ensure that the drained water runs off correctly and safely.

Fixing the Unit in Position



The outdoor unit must be installed on a rigid and stable base to avoid any increase in the noise level and vibration, particularly if the outdoor unit is to be installed close to a neighbour. If it is to be installed in a location exposed to strong winds or at a height, the unit must be fixed to an appropriate support (wall or ground).

1 Position the outdoor unit so that the air flow is directed towards the outside.

2 Attach the outdoor unit to the appropriate support using anchor bolts.

Capacity	A	B
UBH1800E, DH18ZAX	582mm	340mm
UBH2400E/UDH3200E, DH24ZAX/DH32ZAX	660mm	340mm

3 If the outdoor unit is exposed to strong winds, install shield plates around the outdoor unit, so that the fan can operate correctly.

Connecting Up and Removing Air In the Circuit

The outdoor unit is loaded with sufficient R-22 refrigerant for 5 metres of piping. The air in the indoor unit and in the pipe must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling/heating capacity and could lead to a malfunction. Refrigerant for air purging is not charged in the outdoor unit. Use Vacuum Pump as shown at the figure.

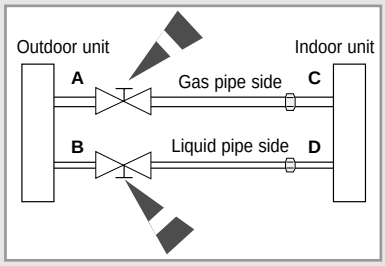
<None>Adding Refrigerant

Refrigerant must be added if the piping measures more than 5 metres in length (maximum of "A" metres). This operation can only be performed by a qualified refrigeration specialist.

☛	If you have used...	Then...
	More than 5 metres of the pipes	"B"g of refrigerant (R-22) must be added for each extra metre.
	Less than 5 metres of piping	The purge time is normal

Model	A	B	
		a	b
❋❋❋18❋❋❋	30	40	50
❋❋❋24❋❋❋	30	40	50
❋❋❋32❋❋❋	30	55	55

For details about the installation situation(a or b), refer to page 12.

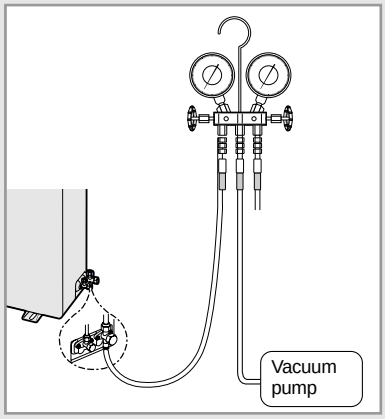


1 Connect each assembly pipe to the appropriate valve on the outdoor unit and tighten the flare nut.

2 Referring to the illustration opposite, tighten the flare nut on section B first manually and then with a wrench, applying the following torque.

Outer Diameter	Torque (kgf•cm)
9.52 mm (3/8")	300
15.88 mm (5/8")	750

3 Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port as shown at the figure.

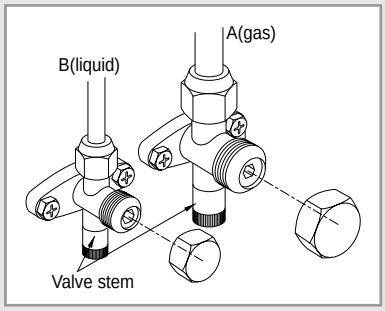


4 Open the valve of the low pressure side of manifold gauge counter-clockwise.

5 Purge the air from the system using vacuum pump for about 10 minutes.
- ◆ Close the valve of the low pressure side of manifold gauge clockwise.
- ◆ Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 10 minutes.

This procedure is very important in order to avoid gas leak.
- ◆ Turn off the vacuum pump.
- ◆ Remove the hose of the low pressure side of manifold gauge.

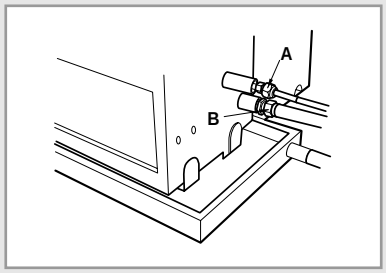
6 Set valve cork of both liquid side and gas side of packed valve to the open position.

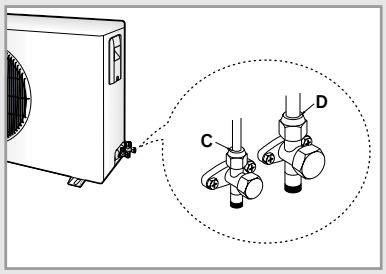


7 Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 18N•m with a torque wrench.

8 Check for gas leakage.
- ◆ At this time, especially check for gas leakage from the 3-way valve's stem nuts(A port), and from the service port cap.

Performing Leak Tests





Before completing the installation (insulation of the hose and piping), you must check that there are no gas leaks.

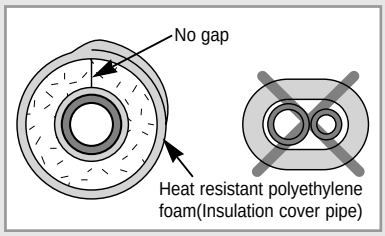
To check for gas leaks on the...	**Then, using a leak detector, check the...**
Indoor unit	Flare nuts at the end of sections A and B.
Outdoor unit	Valves on sections C and D.

Insulation

Once you have checked that there are no leaks in the system, you can insulate the piping and hose.

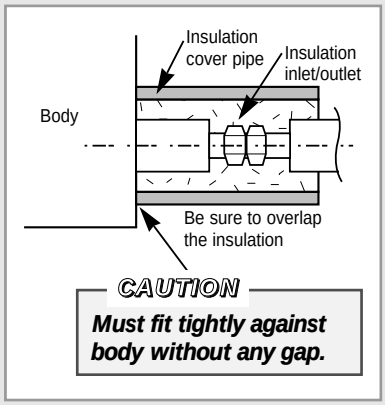
1 To avoid condensation problems, place **heat-resistant polyethylene foam** separately around each refrigerant pipe.

Note ◆ Always make the seam of pipes face upwards.

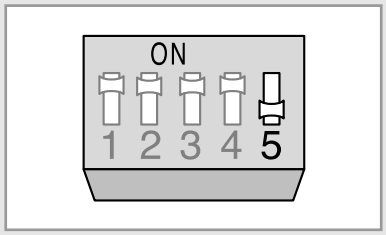


2 Wind insulating tape around the pipes.

3 Finish wrapping insulating tape around the rest of the pipes leading to the outdoor unit.



Increasing Fan Speed



If external static pressure is too great(due to long extension of ducts, for example), the air flow volume may drop too low at each air outlet. This problem can be solved by increasing the fan speed using the following procedure.

1 Remove the screw on the electrical component box and remove the cover plate.

2 Adjust the DIP switch(SW2) on the main PCB to the "OFF" position.

Switch No.	Switch Position	Function
5	ON	Normal speed
	OFF	High speed

3 Re-install the cover plate and join the removed screw.

How to Read Diagram

1 The vertical axis is the external static pressure(mmAq) while the horizontal axis represents the AIR FLOW(m^3/min).

2 The characteristic curves for 'HH', 'H', 'Med', and 'Low' fan speed controller are shown.

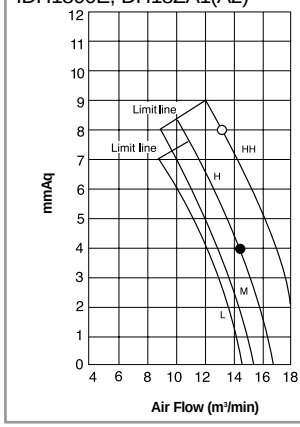
3 The nameplate values are shown based on the 'H' air flow.

4 In case of model IDH2400E and DH24ZA1(A2), the air flow is 17.4(m^3/min), while the external static pressure is 4mmAq at 'H' position.

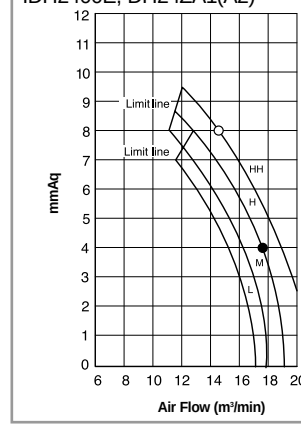
5 If external static pressure is too great, the air flow volume may drop too low as explained above.

Note HH : DIP Switch OFF position(High speed)
H : At shipment(Normal speed)

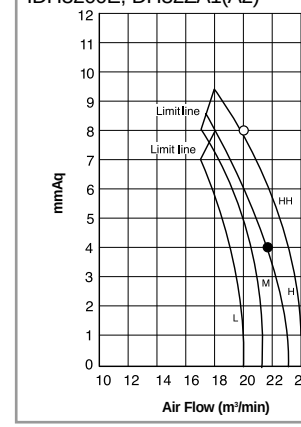
IDH1800E, DH18ZA1(A2)



IDH2400E, DH24ZA1(A2)



IDH3200E, DH32ZA1(A2)



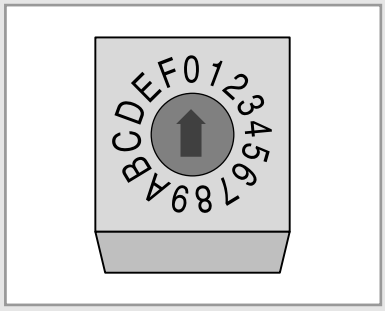
Setting Up Option Switches

IMPORTANT : Before setting up the option switches, always make sure that you have turned off the main power.

Main PCB in the Indoor Unit

Rotary Digital Switch(SW1)

A user can operate up to sixteen air conditioners by using the wired remote controller. Before controlling more than one air conditioner, you should connect the air conditioner each other. And you must assign addresses to the air conditioners. For further details on connecting air conditioners, refer to page 30. If the user would like to controller only one air conditioner, make sure that the arrow is at “0” position.



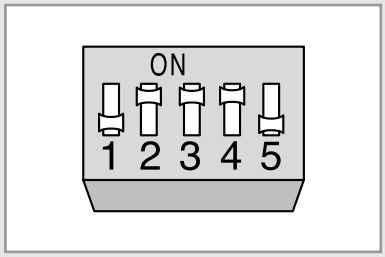
Turn the arrow to the desired position referring to the table below.

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen

DIP Switch(SW2)

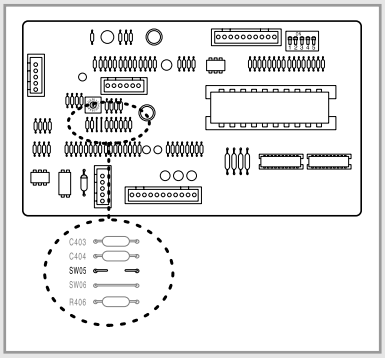
Adjust the switch to the desired position referring to the table below.

Switch No.	Option Item	Switch Position		Note
		ON	OFF	
1	Ventilator Fan	Not installed	Installed	Not supplied
2	Drain Pump	Installed	Not installed	Optionally supplied
3	Float Switch	Installed	Not installed	
4	Filter Cleaning Cycle	1,000 hours	2,000 hours	
5	Indoor Fan Motor Speed	Normal	High speed	



CAUTION

If you do not adjust the switch when not installing the drain pump, "⁎9" error will occurs. If this happens, adjust the No.2 and No.3 switches to the "OFF" position.

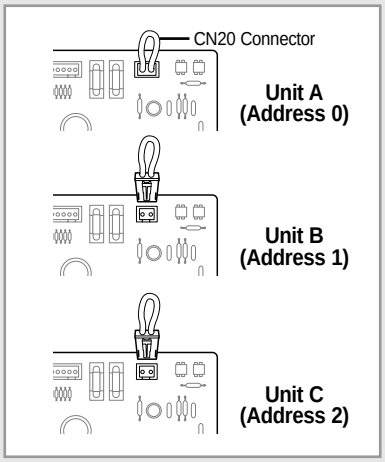


Jumper Wire(SW05)

You can adjust the setting temperature for heating. Cut off the SW05, depending on the situation.

Option Item	Situation of the Switch	Note
Setting temperature +2°C	Short	Preset Position
Setting temperature +5°C	Open	

Sub PCB in the Indoor Unit



CN20 Connector

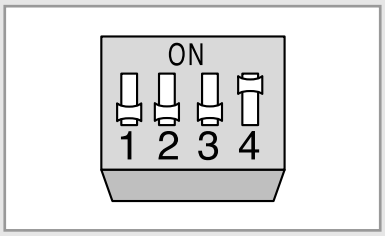
Remove the CN20 connector in the Sub PCB, if necessary, referring to the table below. (This procedure is needed only when the user would like to control a group by using the wired remote controller.)

Address	Situation of the CN20 Connector
0	Connected
1 - F	Removed

Note

- ◆ Up to 16 air conditioners can be controlled with one wired remote controller.
- ◆ If the user does not want to control a group, do not remove the CN20 Connector.

PCB in the Wired Remote Controller



Dip Switch(DS01)

Adjust the DIP switch No.2 and/or No.4 to the desired position referring to the table below. You must not adjust the switch 1 and 3. They should be in "OFF " position at all times.

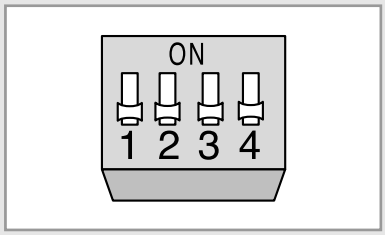
Switch No.	Option Item	Switch Position	
		ON	OFF
2	Number of air conditioner(s) controlled by the wired remote controller	Group controlling	One indoor unit controlling
4	Using wireless remote controller	Can be used	Cannot be used

Centralized Controller

DIP Switch(DS01)

Adjust the DIP switch to the desired position referring to the table below.

Switch No.	1	2	3	4	Meaning
Switch Position	OFF	OFF	OFF	OFF	The air conditioner is operated by the controller adjusted last among the wired remote controller, wireless remote controller and centralized controller.
	OFF	OFF	OFF	ON	A user can use wired/wireless remote controller when the centralized controller is switched on. And he/she cannot use the remote controller(s) when the centralized controller is switched off.
	OFF	OFF	ON	OFF	The air conditioner(s) can be controlled by only the centralized controller. The user cannot use the wired/wireless remote controller in this case.



Note ◆ You cannot install the centralized controller when the wired remote controller for a group has already been installed.

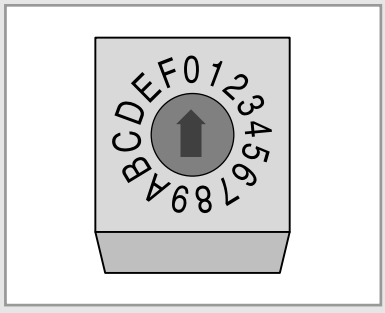
Transmitter

Rotary Digital Switch(DS01)

A user can turn on/off up to sixteen air conditioners by using the centralized controller. To use the controller, you must assign addresses to the air conditioners. For further details on connecting air conditioners, refer to page 31. If the user would like to controller only one air conditioner, make sure that the arrow is at “0” position.

Turn the arrow to the desired position referring to the table below.

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen



Original Position of Option Switches

The option switches are preset by the manufacturer. Refer to the table below, if necessary.

Option Place	Component No.	State
Main PCB in the indoor unit	Rotary Digital Switch(SW1)	0
	DIP Switch(SW2)	ON
	Jumper Wire(SW05)	SHORT
Sub PCB in the indoor unit	CN20 Connector	Connected
Wired Remote Controller	DIP Switch(DS01)	OFF
Centralized Controller	DIP Switch(DS01)	OFF
Transmitter	Rotary Digital Switch(DS01)	0

Note

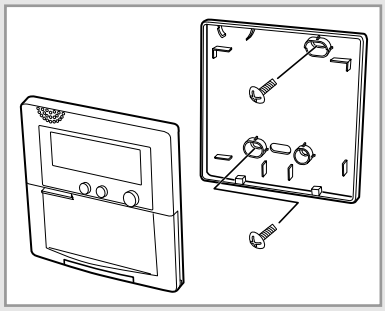
- Before setting up the options, always make sure that you have switched off the main power.
- After adjusting the options, you should supply the power. Otherwise, the options will not be applied.

Wired Remote Controller Installation (Optional)

Accessories

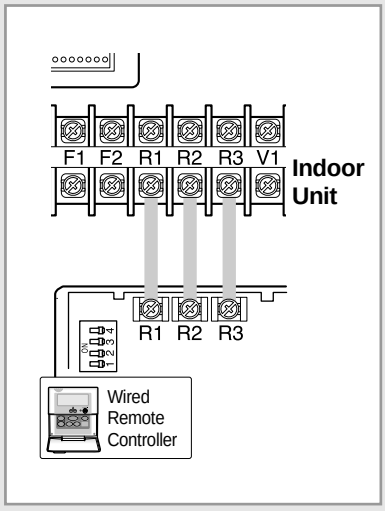
Wired Remote Controller(1) KR-H50110	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)

1 Disassemble the wired remote controller by using two grooves on the top of it.



2 Secure the rear cover of the wired remote controller on the wall with two screws.

3 Connect the R1, R2 and R3 terminals in the wired remote controller to the R1, R2 and R3 terminals on the electrical component box each.



CAUTION

- ***Do NOT keep the wired remote controller cables with a 220V cable because the remote controller cables have low voltage.***
- ***Do NOT input 220V power to the R1, R2 and R3 in the wired remote controller.***

Note **Cable Specifications**

Cable type	Double-insulation, 3G
Size of cables	0.3mm²~0.75mm²
Max. length of electric wires from the indoor unit to the wired remote controller	100m

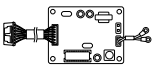
4 Reassemble the wired remote controller.

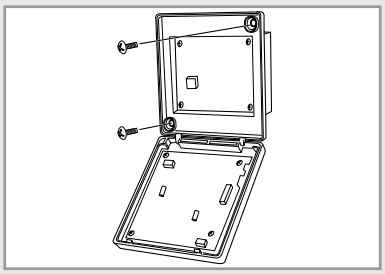
CAUTION

- ***The optional kits must be installed by an installation specialist.***
- ***Before installing the optional kits, ensure that you have turned off the main power.***
- ***All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.***

Centralized Controller Installation (Optional)

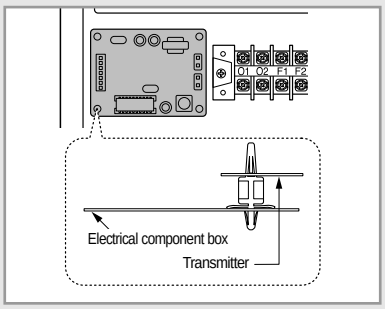
Accessories

Centralized Controller(1) KR-H60110	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)
Transmitter(1) KT-A00 	Spacer Support(4)	Cable-Tie(2)	

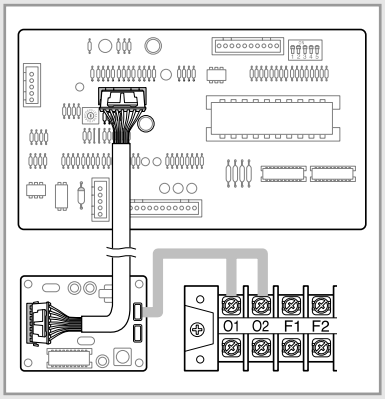


1 Open the centralized controller cover by using two grooves on the top of it.

2 Secure the rear cover of the centralized controller on the wall with two screws.

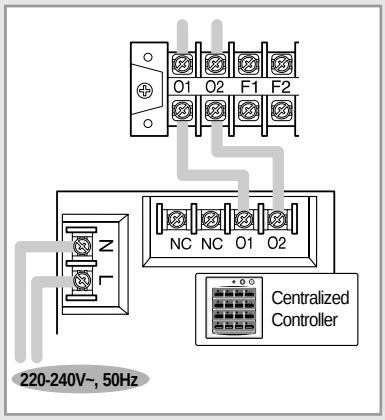


3 Secure the transmitter with four spacer supports into the electrical component box.



4 Connect the cable from the PCB and to the transmitter.
And connect another cable from the O1, O2 terminals and to the transmitter as shown in figure.

5 Connect the O1 and O2 terminals of the centralized controller to the O1 and O2 terminals on the electrical component box as shown in figure.



CAUTION

- ***Do NOT keep the centralized controller cables with a 220V cable because the centralized controller cables have low voltage.***

Note **Cable Specifications**

Cable type	Double-insulation, 2G(Shield Cable)
Size of cables	0.75mm^2~1.25mm^2
Max. length of electric wires from the indoor unit to the centralized controller	1km

6 Connect the power cables.

Note **Cable Specifications**

Cable type	Double-insulation, 2G
Size of cables	0.75mm^2~1.25mm^2

7 Reassemble the centralized controller.

CAUTION

- ***The optional kits must be installed by an installation specialist.***
- ***Before installing the optional kits, ensure that you have turned off the main power.***
- ***All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.***

Wireless Remote Controller Installation (Optional)

Accessories

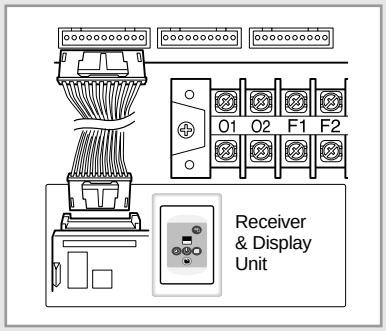
Wireless Remote Controller(1) KR-H40100	Battery(2)	M4 X 16 Tapped Screw(2)	Remote Controller Holder(1)
Receiver & Display Unit(1) KRE-H2000	Cable-Tie(2)	Cable Clamp(5)	M4 X 16 Tapped Screw(7)

Wire Kit KWE-A110

Length : 10m

1 Remove the receiver & display unit cover by using the tab on the bottom of it.

2 Open the receiver & display unit.

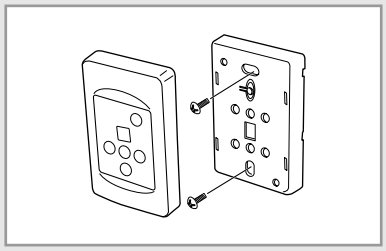


3 Connect the end of the connector wire to the receiver & display unit and connect the other end of the wire to the electrical component box as shown in figure.

CAUTION

- ***Do NOT keep the receiver & display unit cables with a 220V cable because the remote controller cables have low voltage.***

4 Close the receiver & display unit.



5 Secure the receiver & display unit on the wall with two screws.

6 Reassemble the receiver & display unit cover.

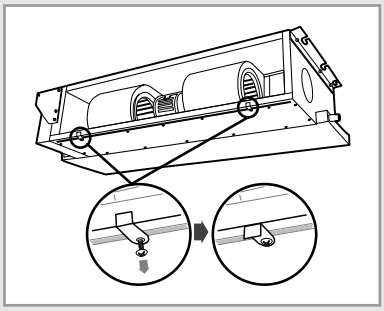
CAUTION

- ***The optional kits must be installed by an installation specialist.***
- ***Before installing the optional kits, ensure that you have turned off the main power.***
- ***All optional kits cables should be installed according to the national wiring rules and you must install them in the wall not to be touched by users.***

Air Filter Installation (Optional)

The air filter can be installed to the bottom or rear of the indoor unit depending the situation.

1 Remove two screws securing on the levers under the bottom of the indoor unit.

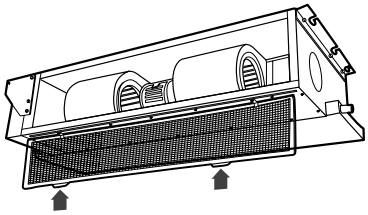


2 Reassemble the levers making the other side face the indoor unit as shown in figure.

3 Turn the levers not to prevent inserting the air filter.

4 Insert the air filter into the indoor unit depending on the situation.

Installing to the rear

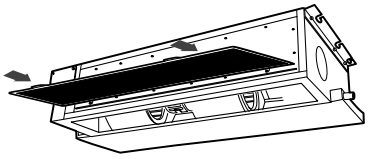


Note **When installing to the bottom of the unit...**

- ◆ Before inserting the air filter, remove the cover on the bottom of the unit removing the screws.
- ◆ Reinstall the cover on the rear of the unit after turning it 180°.

5 Turn the levers to the original position to fix the air filter securely.

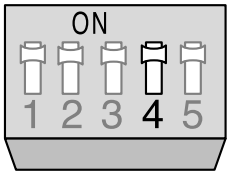
Installing to the bottom



Note **Setting Up Filter Cleaning Cycle**

- ◆ Adjust the DIP switch(SW2) in the main PCB to the desired position referring the table below.

Switch No.	Switch Position	Filter Cleaning Cycle
4	ON	1,000 hours
	OFF	2,000 hours



CAUTION

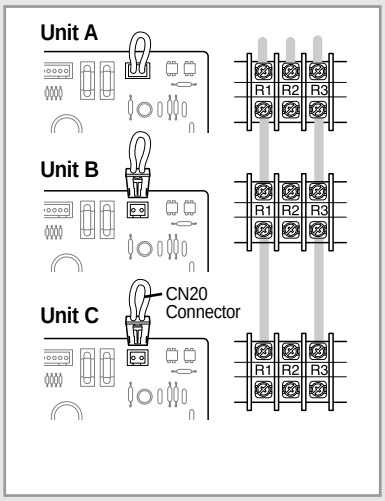
- ◆ ***The optional kits must be installed by an installation specialist.***
- ◆ ***Before installing the optional kits, ensure that you have turned off the main power.***
- ◆ ***The optional air filter has to be cleaned only by an authorized person or service agent.***

Controlling a Group

* You should adjust the option switches in the electrical component box or on the PCB of the wired remote controller.
* **Before setting up the option switches, always make sure that you have turned off the main power.**
* After adjusting the options, you should supply the power. Otherwise, the options will not be applied.

With Wired Remote Controller

A user can operate up to sixteen air conditioners by using the wired remote controller In this case, the air conditioner can be controlled by only one wired remote controller connected to the indoor unit and cannot be controlled by the others.



1 Connect the R1, R2 and R3 terminals in the wired remote controller to the R1, R2 and R3 terminals in any indoor unit “A” each.

2 Connect the R1 and R3 terminals in the indoor unit “A” to the R1 and R3 terminals in another indoor unit “B”.

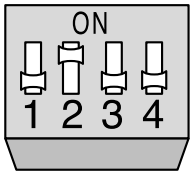
CAUTION

When connecting the cables, you must keep these :
- ***The R1 terminals must be connected to the R1s.***
- ***The R3 terminals must be connected to the R3s.***
- ***Do not connect the R2 terminals to anywhere.***
  If you connect R2 terminals, the PCB will be damaged.

3 Connect the R1 and R3 terminals of “B” to any indoor unit “C” and connect the others as the same way.

4 Adjust the rotary digital switch in the main PCB to the desired position referring to the table below.

Switch No.	Number of indoor unit(s)	Switch No.	Number of indoor unit(s)
0	One	8	Nine
1	Two	9	Ten
2	Three	A	Eleven
3	Four	B	Twelve
4	Five	C	Thirteen
5	Six	D	Fourteen
6	Seven	E	Fifteen
7	Eight	F	Sixteen



5 Remove the CN20 connectors on the sub PCBs except the unit connected with remote controller(Adress “0”).

6 Adjust the DIP switch No. 2 in the wired remote controller to “ON” position.

Note **You cannot install the centralized controller when the wired remote controller for a group has already been installed.**

With Centralized Controller

A user can turn on/off up to sixteen air conditioners by using the centralized controller. In this case, the user can turn on/off all air conditioners or a specific air conditioner connected with the Centralized controller. And each air conditioner can be controlled by its own remote controller(s) depending on the setting.

1 Connect the O1 and O2 terminals in the Centralized controller to the O1 and O2 terminals in the indoor unit “A”.

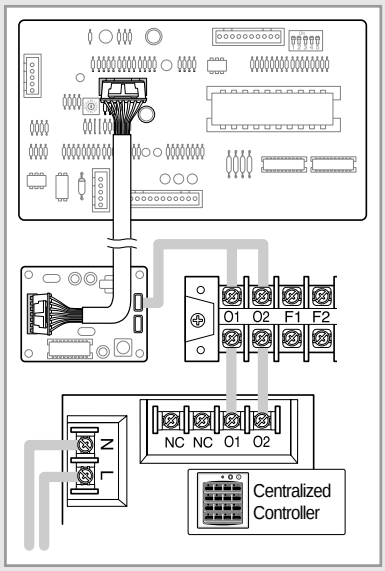
2 Connect the O1 and O2 terminals in the indoor unit “A” to the O1 and O2 terminals in another indoor unit “B”.

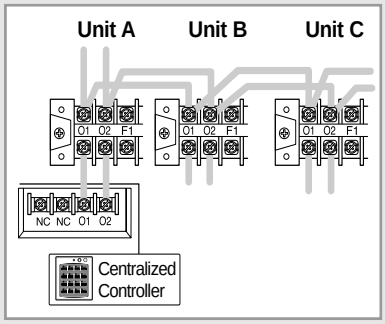
3 Connect the O1 and O2 terminals of “B” to any indoor unit “C” and connect the others as the same way.

4 Adjust the DIP switch(DS01) in the centralized controller to the desired position referring to the table below.

Switch No.	1	2	3	4	Meaning
Switch Position	OFF	OFF	OFF	OFF	The air conditioner is operated by the controller adjusted last among the wired remote controller, wireless remote controller and centralized controller.
	OFF	OFF	OFF	ON	A user can use wired/wireless remote controller when the centralized controller is switched on. And he/she cannot use the remote controller(s) when the centralized controller is switched off.
	OFF	OFF	ON	OFF	The air conditioner(s) can be controlled by only the centralized controller. The user cannot use the wired/wireless remote controller in this case.

5 Adjust the rotary digital switch on the transmitter to the desired position referring to the table on page 23.





Note **You cannot install the centralized controller when the wired remote controller for a group has already been installed.**

Checking and Testing Operations

To complete the installation, perform the following checks and tests to ensure that the air conditioner is operating correctly.
Review all the following elements in the installation:

- ◆ ***Piping connection tightness to detect any gas leakages***
- ◆ ***Connecting wiring***
- ◆ ***Heat-resistant insulation of the piping***
- ◆ ***Drainage***
- ◆ ***Earthing wire connection***
- ◆ ***Correct operations(follow the steps below).***

Wired Remote Controller

1 Supply the power and switch on the air conditioner.

2 Press Test button more than 3 seconds without selecting any mode.
Result: The air conditioner runs in COOL mode for 3 minutes.

Note **If the error code is displayed, fix the error referring to page 34. And supply the power, restart testing.**

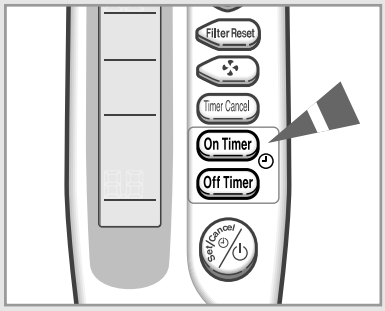
3 Check that user's option(s) and the outdoor unit operate properly.

Note **Do not attempt to select the operating mode or to adjust the temperature. It may switch the outdoor unit off.**

4 The air conditioner will switch it off automatically after 3 minutes.

Note **If the air conditioner does not work because of switching off the thermistor sensor caused by the room temperature, you can operate the air conditioner by using Test button.**

Wireless Remote Controller



1 Supply the power and switch on the air conditioner.

2 Remove the remote controller batteries.

3 Insert the batteries pressing the On Timer and Off Timer buttons at the same time.

4 Stop pressing the buttons after inserting the batteries.

5 Press the (ON/OFF) button.
Result: The air conditioner runs in COOL mode for 3 minutes.

Note **If the error code is displayed, fix the error referring to page 35. And supply the power, restart testing.**

6 Check that user's option(s) and the outdoor unit operate properly.

Note **Do not attempt to select the operating mode or to adjust the temperature. It may switch the outdoor unit off.**

7 The air conditioner will switch it off automatically after 3 minutes.

Wired Remote Controller

If the error occurs, and the error code are displayed on the wired remote controller. The error code blinks for 5 seconds and it disappears. If you would like to see the error code after disappearing it, press the Test button.

Meaning of Error Code

The error code is composed of two-digit figures or letters. The first means an indoor unit address and the second means an error code.

Error Code	Meaning	Checking area
∗ 1	Indoor unit thermistor sensor error	◆ Indoor unit thermistor sensor ◆ PCB of the indoor unit
∗ 5	Indoor unit pipe thermistor sensor error	◆ Indoor unit pipe thermistor sensor ◆ PCB of the indoor unit
∗ 6	Outdoor unit thermistor sensor error	◆ Outdoor unit thermistor sensor ◆ PCB of the outdoor unit
∗ 9	Float switch error	◆ Drain pump, Float switch ◆ Drain system ◆ DIP switch(SW2) of the indoor unit (When the drain pump has not been installed, the No.2 and No.4 switches must be at "OFF" postion.)
∗ A	A Indoor and Outdoor communication error	◆ Communication cables of indoor and outdoor units ◆ PCB of indoor and outdoor units
∗ C	Wired remote controller communication error	◆ Wired remote controller cables, Wired remote controller ◆ Main/Sub PCB of the indoor unit
∗ D	Outdoor pipe thermistor sensor error	◆ Outdoor pipe thermistor sensor ◆ PCB of the outdoor unit

Example “39” means the address “3” indoor unit has a trouble with a float switch.

Wireless Remote Controller

If the error occurs, the indicators on the receiver & display unit displays the error.

Meaning of Error Code

Indicators			Meaning	Checking area
Timer	Operating	Filter		
◗	○	○	Indoor unit thermistor sensor error	◆ Indoor unit thermistor sensor ◆ PCB of the indoor unit
▲	▲	○	Indoor unit pipe thermistor sensor error	◆ Indoor unit pipe thermistor sensor ◆ PCB of the indoor unit
○	▲	▲	Outdoor unit thermistor sensor error	◆ Outdoor unit thermistor sensor ◆ PCB of the outdoor unit
■	○	■	Float switch error	◆ Drain pump, Float switch ◆ Drain system
▲	○	▲	Indoor and Outdoor communication error	◆ Communication cables of indoor and outdoor units ◆ PCB of indoor and outdoor units
■	■	○	Wired remote controller communication error	◆ Wired remote controller cables, Wired remote controller ◆ Main/Sub PCB of the indoor unit
○	○	◗	Outdoor pipe thermistor sensor error	◆ Outdoor pipe thermistor sensor ◆ PCB of the outdoor unit

○ : OFF ◗: Blinking ▲▲: Blinking at once ■■: Blinking alternately

Explaining Operations to the Owner

Before leaving the premises on which you have installed the air conditioner, you should explain the following operations to the owner, making reference to the appropriate pages in the owner's instruction booklet.

1 How to start and stop the air conditioner.

2 How to select the operating mode and adjust the temperature and fan settings.

3 How to set the timers.

4 How to remove and clean the air filter, if installed.

Once the owner is happy with the basic operations, hand over the owner's instruction booklet and this installation manual for storage in a handy and safe place.

Technical Specifications

Model	Power Supply
ADH1800E ADH2400E ADH3200E DH18ZA1(A2) DH24ZA1(A2) DH32ZA1(A2)	1Ø, 220-240V~, 50Hz

THIS AIR CONDITIONER IS MANUFACTURED BY:
ESTE AIRE ACONDICIONADO HA SIDO FABRICADO POR:
QUESTO CONDIZIONATORE D'ARIA È PRODOTTO DA:
ESTE APARELHO DE AR CONDICIONADO É FABRICADO POR:
CE CLIMATISEUR EST FABRIQUE PAR:
DIESE KLIMAANLAGE IST FABRIZIERT VON:
ΑΥΤΗ Η ΣΥΣΚΕΥΗ ΚΑΤΑΣΚΕΥΑΣΤΗΚΕ ΑΠΟ :
ЭТОТ КОНДИЦИОНЕР ИЗГОТОВЛЕН ФИРМОЙ:

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